

**GUIDELINES
FOR THE PREPARATION OF:**

**AN ENVIRONMENTAL IMPACT STATEMENT
ON MILITARY FLYING ACTIVITIES IN LABRADOR AND QUEBEC**

ENVIRONMENTAL ASSESSMENT PANEL

JANUARY 1987

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1.0 DEFINITIONS

The following terms are defined as follows:

"Associated Project" means any construction or activity that will be required as a result of the initiation or continuation of either Component 1 or Component 2;

"Environmental Assessment Panel" or **"Panel"** means the group of persons appointed by the Minister of the Environment to conduct a public review of the environmental and socio-economic impacts of the Project;

"Environmental Impact Statement" or **"EIS"** means the documented assessment of the consequences of the Project, prepared by or through the Proponent;

"Environmental Assessment and Review Process" means the process established by Environmental Assessment and Review Process Guidelines Order (P.C. 1984-2132, 21 June, 1984);

"Federal Administrator" means the federal Minister of the Environment or any other person or persons authorized from time to time by the Governor in Council to exercise the functions described in Section 23 of the James Bay and Northern Québec Agreement;

"James Bay and Northern Québec Agreement" or **"JBNQA"** means the agreement entered into by the Grand Council of the Crees (of Québec), the Northern Quebec Inuit Association, the Government of Québec, la Société d'énergie de la Baie James, la Société de développement de la Baie James, la Commission hydro-électrique de Québec (Hydro-Québec), and the Government of Canada on November 11, 1975, as amended from time to time;

"Kativik Regional Government" means the regional government contemplated by Section 13 of the JBNQA;

"North Atlantic Treaty Organization" or "NATO" means the mutual-defence organization created to implement the North Atlantic Treaty of 1949. Its members include the following countries: Belgium, Canada, Denmark, France, West Germany, Greece, Iceland, Italy, Luxembourg, The Netherlands, Norway, Portugal, Spain, Turkey, the United Kingdom, and the United States.

"Project" means all the construction and activities associated with low-level military flight training over parts of Labrador and Quebec and with the establishment and operation of a Tactical Fighter Weapons Training Center (TFWTC) at Goose Bay, Labrador;

"Project Area" means the maximum area identified by the Proponent pursuant to Paragraph 4.0(2) hereof;

"Proponent" means the Department of National Defence;

"Technical Specialist" means the person whose services have been retained by the Panel to provide advice on technical matters, and whose advice may also be requested by any participant in the review process.

2.0 INTRODUCTION

The Environmental Assessment and Review Process Guidelines Order (P.C. 1984-2132, 21 June, 1984) requires that proposals initiated or funded by the federal government or that will be located on federal lands, and which are likely to have significant adverse environmental effects, be submitted to a public review.

That public review is conducted by an Environmental Assessment Panel, the members of which are appointed by and report to the Minister of the Environment.

The Project was referred for public review by the Associate Minister of National Defence in accordance with the Federal Environmental Assessment and Review Process (EARP). The Project is also subject to public review under the JBNQA, and the Minister of the Environment, the Kativik Regional Government and the Federal Administrator have signed a Memorandum of Understanding concerning the review. Only one public review, incorporating certain principles of the JBNQA with respect to Project activities and impacts in the Territory defined in the JBNQA, will be held.

These Guidelines have been prepared in order that the impacts of low-level military flights over parts of Labrador and Québec and of the establishment and operations of an integrated Tactical Fighter Weapons Training Centre (TFWTC) for training the air forces of the North Atlantic Treaty Organization (NATO) can be identified and evaluated.

These Guidelines are based on the following:

- (i) scoping sessions with civic leaders, representatives of the aboriginal populations, government officials, and other interested persons in St. John's, Happy Valley-Goose Bay, Nain, Schefferville (including Kawawachikamach and Matimekoshe), Québec, Montréal, Kuujuaq and Sheshatshie;

- (ii) a review of relevant literature carried out by the Panel's Secretariat;
- (iii) the results of 18 public meetings held in Newfoundland/Labrador and Québec;
- (iv) comments on the draft Guidelines from the Technical Specialists; and
- (v) the deliberations of the Panel.

The Proponent is expected to observe the intent and the letter of these Guidelines and to try to identify all the impacts likely to arise from the Project.

The Proponent must obtain the approval of the Panel before making any major changes to the required structure or contents of the Environmental Impact Statement (EIS).

The Panel will ensure the distribution and availability of the EIS when it is complete. At least sixty days will be allowed for public review of the EIS, during which time the Panel will welcome written comments on the EIS.

At the end of the review period, the Panel will decide if the EIS is acceptable. If it is, public hearings will be called sufficiently in advance to allow participants to prepare their interventions. If it is not, the Panel will request the Proponent to complete it, and public hearings will not be held until the completed EIS has been received and made available to the public sufficiently in advance to allow participants to prepare their interventions.

Following the public hearings, the Panel will prepare a report of its conclusions and recommendations, which it will submit to the ministers of the Environment and of National Defence.

More detailed information on the review process can be found in the Procedures for the public review published by the Panel in August 1986. This document is available from the Panel's Secretariat.

3.0 SCOPE AND TIMETABLE

3.1 Scope

These Guidelines apply to the entire Project, including all activities associated with its construction, operation and maintenance, termination and demobilization.

The Panel has divided the Project into two components:

- Component 1: present and future low-level flight training pursuant to agreements between the Government of Canada and certain of its NATO allies;
- Component 2: the establishment and operation of a TFWTC, including all the activities, facilities, and installations associated with the TFWTC.

The EIS should deal with the impacts of the two components separately, but it should also point out any linkages or interactions between them, especially where those linkages or interactions might lead to cumulative impacts.

The Proponent should concentrate its studies on the effects of low-level flights in the special use flying areas described in the letter from the Associate Minister of National Defence to the Minister of the Environment referring the Project for public review, but should also study the effects of flying activities related to the Project outside those special use flying areas.

The Panel is particularly concerned that the EIS should identify and evaluate the consequences of the termination of Components 1 and 2 and that it should recommend appropriate mitigative measures.

3.2 Timetable

The Proponent wants the review to be carried out expeditiously, so that it can respond promptly to any invitation from NATO to host the TFWTC.

The Panel will endeavour to complete its review expeditiously, but it will accord priority to the requirements of the review process rather than to the timetables of third parties.

4.0 METHODOLOGICAL CONSIDERATIONS

The EIS should be focussed and methodologically rigorous. The Panel has identified issues for comprehensive analysis, which are outlined in Section 5.0. In discussing those issues and other issues that may emerge from its own research and reflection, the Proponent must describe past, present and future environmental conditions to the extent necessary to predict changes that may occur in the natural and human environment.

The Panel recommends that the Proponent adopt and implement the "requirements for organizing and conducting ecological impact studies" established by Beanlands and Duinker (1983).

The Panel appreciates that with respect to the prediction of social, economic and cultural impacts, there is no comparable consensus as to methodology. The Panel requires that social, economic and cultural impacts be treated thoroughly and rigourously in the EIS, and expects the Proponent to employ an adequate methodology. In order to facilitate the Proponent's reflection on appropriate methodologies, Appendix 1 is a list of recommended reading.

The term "ecosystem" must be interpreted broadly, to include human populations with their social, spiritual, cultural, economic, and other structures, systems practices, institutions and values, as part of a life-support system composed of the air, water, minerals, soil, plants, animals and micro-organisms, all of which function together to maintain the whole.

In planning and implementing consultation and research in any community, the Proponent must respect the "Ethical Principles for the Conduct of Research in the North", reproduced in Appendix 2. The Panel recommends that the Proponent hire local persons and take other steps to involve them and local or regional organizations in its research.

Where particular age or sex groups may be differentially affected by an impact, the Proponent must organize its research and analysis accordingly. In this context, the Proponent might be guided by, among others, Canada's resolution adopted by the World Conference to Review and Appraise the Achievements of the United Nations Decade for Women: Equality, Development and Peace, reproduced in Appendix 3.

The Proponent must undertake fieldwork or original research wherever necessary to verify or complete existing data or to collect data that are not already available.

The EIS therefore should satisfy the following minimum requirements:

1. It must identify a set of valued ecosystem components to provide a focus for subsequent activities.

In attempting to ascertain the fundamental cultural values placed upon the various components of the ecosystem, the Proponent must consult all groups, including provincial, regional and municipal governments, and a representative sample of individuals in the Project Area, and must also employ other available methodologies as are available.

If different groups assign different values to certain components, the Proponent must explain and justify the values that it retains, or must present a series of analyses based upon the different values that it identifies.

The EIS must contain a checklist showing the following: ecosystem components that are not expected to be impacted; ecosystem components that are expected to be impacted but that are not sufficiently valued to be studied; and ecosystem components that are expected to be impacted and that are sufficiently valued to be studied.

2. It must show clear temporal and spatial boundaries for the analysis of expected changes in each valued ecosystem component, and must explain and justify such boundaries, bearing in mind that they may not be the same for each element of the Project or for each valued ecosystem component.
3. It must describe the strategies and methodologies for investigating the effects of the Project on each valued ecosystem component, and for establishing the overall impacts of the Project. The EIS must formulate hypotheses that can be tested during the study or in the monitoring programme.
4. It must define how the significance of predicted changes in the valued ecosystem components will be determined.

The terms used to describe the significance of Project-induced changes in valued ecosystem components must be defined. If they cannot be so defined, adequate reasons must be given, and the consequences of the absence of such definitions must be identified. The groups and individuals mentioned in 4.0(1) must be consulted in this matter also.

5. It must state impact predictions explicitly and must present the basis on which they are made.

The predictive analysis must describe the nature, magnitude, duration, extent, level of confidence and range of uncertainty of the predicted changes.

6. The EIS must also take into account the past, present and future dynamism of the ecosystem, including that of the relevant cultures, societies and economies, in relation to the expected duration of the Project.
7. Plans to monitor the possible effects of the Project must be described.

The scope, timing and relationships with existing monitoring programmes must be provided. The Proponent must clearly present its proposals for

mitigating predicted changes considered to be undesirable, their anticipated effectiveness, and residual impacts. The commitment of the Proponent to implement recommendations regarding mitigative measures must be indicated.

Studies are currently under way to examine the effects of low-level flights on human health and on caribou. The Proponent is encouraged to take account of the data, results and recommendations of those studies in designing and preparing the EIS. The Proponent must, however, ensure that it has gathered additional data if required.

Low-level flight training has been, and is still being practised in other countries, and TFWTCs also exist elsewhere. The Proponent must make full use of such data from other areas. The Proponent must not limit this part of its study to comparative data on the effects of low-level flying by military aircraft, but must also take account of studies pertaining to the effects of civil aviation.

Account must also be taken of studies on the social, cultural and economic impacts of military activities and bases, with special reference to their impacts in isolated and developing areas.

The benefits and disadvantages of the Project may be concentrated in different areas, and many of the impacts of the Project may not lend themselves to quantification. In developing methodologies, collecting and analyzing data, and proposing remedial measures and monitoring programmes, the Proponent must deal explicitly with this problem.

Many of the effects of the Project will probably occur in areas that have been studied relatively little by practitioners of the western scientific tradition. There is increasing recognition, however, that aboriginal persons possess knowledge and understandings that complement and sometimes improve those available from other approaches. The Proponent must make full use of

the knowledge, understandings and interpretations of aboriginal persons, not only in areas where other types of data, knowledge and interpretations are not available, but also to complement and improve them where they exist.

5.0 THE ISSUES

The Panel has identified the following issues that merit special attention.

- (1) plans and opportunities for economic development in the Project Area, with particular reference to Happy Valley-Goose Bay;
- (2)
 - (a) the effects of noise from military aircraft flying at subsonic and supersonic speeds on the physiological and psychological health of human individuals and groups, including a consideration of the so-called "startle effect";
 - (b) the effects of noise from military aircraft flying at subsonic and supersonic speeds on fish and wildlife, both individuals and populations, including a consideration of the so-called "startle effect". The examination of this issue must include reference, as appropriate, to group cohesion, short- and long-term mother-young bonds, migratory behaviour, feeding behaviour, nutritional and physiological status, distribution and dispersion (seasonal and long-term) reproductive behaviour, interspecific relations (including predation) and other aspects of behaviour and life-cycles;
- (3) the effects of exhaust emissions from military aircraft on the natural and human environments;
- (4) the effects of the Project on the cultures, economies, and land use of the residents of the Project Area, with particular reference to those of the aboriginal peoples;
- (5) the impacts of the Project on renewable-resource-based commercial activities, including angling and sport hunting;
- (6) the impacts on the natural and human environments of:

- (a) construction activities at Goose Bay Airport,
 - (b) the operation of the TFWTC,
 - (c) the termination of the Project;
- (7) the cumulative effects of the Project and of other projects and activities in the Project Area;
- (8) the impacts of the development and operation of land and sea weapons and training ranges;
- (9) the effects of the Project on the aboriginal and treaty rights recognized and affirmed in Schedule B, Part 2 of the Constitution Act 1982, including the effects on the process of negotiation and settlement of aboriginal claims; and
- (10) the need for monitoring.

The EIS must pay special attention to the preceeding, but that list of issues should not be considered as exhaustive. Should the Proponent, through its own studies and consultation, estimate that there are other matters that should be studied, it must do so.

6.0 CONTENTS OF THE ENVIRONMENTAL IMPACT STATEMENT

6.1 Summary and Concordance

6.1.1 Summary. The Summary must be included in the EIS and also published separately. It must be in English and French and in a sufficient number of languages, dialects and orthographies to meet the needs of the following groups: the Inuit of Kuujjuaq and Kangihsualujjuaq; the Inuit of Labrador; the Naskapis of Québec; the Montagnais of Schefferville and the Lower North Shore of Québec; and the Naskapi-Montagnais-Innu of Labrador.

The Summary must consolidate the important findings of the EIS and must be written in such a manner as to allow readers to focus immediately on the major projected impacts, the principal areas of uncertainty, and other important matters. It must be written in terms understandable to the general public, especially the general public of the Project Area.

The Summary must contain at least the following: description and justification of the Project; identification of the Proponent; major predicted positive and negative impacts; proposed remedial measures; residual impacts; proposed monitoring programme; and limitations from unavailable data or for other reasons.

The Summary must contain such maps, diagrams and plans as are necessary to permit the public to form an adequate understanding of the Project, its impacts, and other relevant issues. The Panel encourages the Proponent to use video and audio recordings, diaporamas, and other visual aids to assist the public in forming a full understanding of the EIS. For instance, films might facilitate the public's understanding of a technical discussion of the impacts of noise from low-flying military aircraft on the behaviour of caribou.

6.1.2 Concordance. The Concordance must take the form of a table indicating the sections of the EIS that deal with each matter raised in

these Guidelines. The Panel will provide the table, which the Proponent must complete.

6.2 Project Setting

6.2.1 Declaration. The Proponent must assume full responsibility for statements and judgements appearing in the EIS. The proponents of associated projects must be identified.

6.2.2 Project Justification. The Panel needs to understand the reasons for the Project in order to weigh adequately the benefits and disadvantages of its proceeding or not proceeding. This subsection must therefore describe the purposes of the Project and how it fits into international, national or regional treaties, plans, agreements, strategies, or requirements.

This subsection must include a documented justification of the proposed timing and geographic location of the Project and of each of its elements.

The Proponent must indicate whether the Project or any of its elements will infringe any individual or collective right recognized and protected by the Canadian Charter of Rights and Freedoms, the Universal Declaration of Human Rights, the Québec Charter of Human Rights, the Newfoundland Human Rights Code or by any other similar legislation, charter, or declaration.

6.2.3 Other Projects. The Proponent must describe all Associated Projects and must treat them as part of the Project for purposes of the EIS.

Information on other existing, planned or probable developments in the Project Area must be presented in sufficient detail to permit the Panel to understand any cumulative impacts or interactions that may arise from them, even if such projects are not within the jurisdiction of the

Proponent. The Proponent is not, however, expected to undertake field-work or original research into such developments, but may base its assessment of their impacts on available information. The EIS must document the Proponent's efforts to inform itself about any such developments. The Proponent must not limit this part of its study to large-scale developments, but must consider also smaller-scale developments, such as might be financed or undertaken by individuals, communities, or local or regional development associations. The Proponent must demonstrate that it has taken into account local, municipal, regional, and provincial land-use and management plans.

6.2.4 Future Phases. The Proponent must describe any future phases of the Project and evaluate, using comparative historical data and other appropriate methodologies, whether proceeding with the Project would be likely to lead to its future expansion or might attract other developments, whether of a similar nature or not.

The Proponent must specify how future phases of the Project or major changes to it after the completion of the EIS will be subject to assessment and review.

6.2.5 Alternatives. The Proponent must describe the major alternatives to the Project or any of its elements, including those that have already been rejected, in sufficient detail to allow the reader to compare and evaluate their respective benefits and advantages. The Proponent must address the question of whether there are alternative strategies for achieving the goals of the Project.

6.3 Project Description

The basic description of Component 1 must be existing agreements between Canada and its NATO allies and any other agreements that are under negotiation. Subsection 6.3.1 lists the other information that must be presented to complete the description of Component 1.

The Proponent has stated that Component 2 is largely a concept. The Proponent must base its EIS on the description of Component 2 appended to the letter of 13 February 1986 from the Associate Minister of National Defence to the Minister of the Environment, as further described by the Department of National Defence in public meetings held by the Panel between September and November 1986.

If, during the preparation of the EIS, NATO changes its requirements for Component 2, the Proponent shall so inform the Panel which may authorize the Proponent to base its EIS on Component 2 as so modified.

Listed below is the minimum information the Panel requires in the EIS about the Project and alternatives not discarded under Subsection 6.2.5.

The Project plans must conform to applicable regulations, guidelines, laws and by-laws. The Proponent must demonstrate that it has consulted the appropriate planning authorities.

The Proponent must use maps of a suitable scale and other descriptive means to identify and describe each component of the ecosystem, including social, cultural and economic components, and to show the Project in relation to recognizable geographic features and to each of the components of the ecosystem mentioned above, including other existing or proposed developments. The Proponent must provide, in addition to the maps provided in the EIS, separate sets of maps, at a larger scale if appropriate, on transparent sheets, so that overlays can be made to permit an assessment of interactions between the different variables studied.

The Proponent must present its estimate of the anticipated lifespan of each Component and element of the Project and must justify its estimates with reference to documented rates of change in military technologies and strategies.

6.3.1 Component 1. The following information must be provided, using the most appropriate combination of maps, plans, tables, diagrams and text:

- (i) a list of the agreements in force and under negotiation, and a summary of their provisions;
- (ii) the location of the past, present and future areas of low-level flight training;
- (iii) the past, present and future flight corridors between Goose Bay and the low-level training areas, and information on the altitude and speed of flights inside those corridors;
- (iv) the pattern and frequency of use of flight paths within the low-level training areas in the past seven years, with an explanation of seasonal and annual variations;
- (v) a description of the mechanisms that have been or will be put into place to inform the public of flight times and flight paths, or to inform the Proponent of the location of human activities in areas likely to be overflowed. A list of complaints received by the Proponent since 1979 concerning low-level military overflights and a description of the Proponent's responses to such complaints must be provided;
- (vi) a description of past, present and planned measures to minimize disturbances to wildlife;
- (vii) the country of origin, types, and numbers of aircraft practising low-level flying out of Goose Bay in each year since 1979, including the number of low-level flights by each, the times of day and the first and last dates of those flights each year;

- (viii) a description of past and present measures to avoid encounters between military and civil aircraft and to reduce or eliminate disturbances to persons on the ground;
- (ix) the numbers and types of aircraft that are expected to engage in low-level flight training in each year of the projected life-span of Component 1, and the frequency, seasons, times of day of these flights, altitudes, and the expected range of flight sizes;
- (x) a sonometric analysis, expressed in decibels at ground level and in the other principal indices used internationally, including equivalent sound level, for each type of aircraft that has been used or is likely to be used, for the range of speeds, altitudes, flight-sizes, and manoeuvres characteristics employed in past, present and future low-level flight training;
- (xi) information on the frequency and distribution of sonic booms, including an analysis of the present state of knowledge concerning the cumulative effects of converging sonic booms and details of advance warning plans for the public;
- (xii) a chemical analysis of the exhaust emissions at varying speeds and altitudes for each type of aircraft and engine to be used or expected to be used and estimates of annual ground level loadings and peak instantaneous loads of contaminant. This must include consideration of the situation when contaminants deposited on, or in, ice or snow are released at break-up;
- (xiii) procedures in effect for preventing straying (accidental or deliberate) from prescribed flight paths and a description of such incidents since 1979;
- (xiv) details of restrictions on civilian flights over low-level training areas;

- (xv) a summary of past accidents and a risk analysis for the various types of accident that can be foreseen and a description of the relevant emergency procedures for both on and off-base accidents;
- (xvi) the number and average length of stay of military personnel assigned to Goose Bay for or in connection with low-level flight training in each year since 1979, and an annual estimate for the duration of Component 1;
- (xvii) past, present and future provision of recreational, health, municipal and other services to visiting military personnel and their dependents;
- (xviii) a description of the jobs related to Component 1 that have been held by military and civilian personnel since 1979, and a projection of the military and civilian employment that will be created throughout the lifespan of Component 1. This subsection must also list the geographical origins, age and sex of the persons employed under Component 1 since 1979;
- (xix) a description of past, present and future purchasing policies for materials and services;
- (xx) current and projected construction and renovation programmes; and
- (xxi) an analysis of the frequency with which fuel has been jettisoned in-flight each year since 1979, including a calculation of the quantities of fuel jettisoned, a description of the locations of such jettisons, and an explanation of the reasons for the jettisons, together with a prediction of the frequency, location and magnitude of such events in the future.

6.3.2 Component 2. The following information must be provided, using the most appropriate combination of maps, plans, tables, diagrams and text.

6.3.2.1 Construction and Renovation

- (i) a description of the types, size and purpose of structures that will be required, and construction and renovation details, including: methods and timing of each phase; the location, quantities and method of acquisition of construction materials and services; routes and details of transportation facilities and equipment; location, size, duration and servicing of construction facilities; interruptions of natural physical processes in terms of timing and other pertinent variables; any debris, effluents and emissions, including noise, caused by or attributable to construction; and cost estimates;
- (ii) an indication of whether the construction activities will interrupt military or civil flights to and from Goose Bay Airport;

6.3.2.2 Infrastructure

With respect to the operating and maintenance requirements of the infrastructure of Component 2, the Proponent must provide the following information, all of which must include projections of any changes during the life-span of Component 2:

- (i) identification of the ownership of and management responsibilities for the infrastructure;
- (ii) a description of any anticipated security procedures that will limit future access to Goose Bay Airport by civilians;
- (iii) the number and types of personnel, distinguishing between military and civilian personnel, required to operate, service and maintain the base;
- (iv) a list of any military facilities now in civilian use that will be reclaimed for military use;

- (v) water supply facilities;
- (vi) liquid and solid waste treatment facilities;
- (vii) unloading, local transportation and storage, facilities for fuel, ordnance and other hazardous supplies, as well as accident prevention systems and emergency plans. Particular reference must be made to the present practice of discharging fuel near the passenger facility in Terrington Basin;
- (viii) electricity supply, including back-up and emergency systems; and
- (ix) the provision of recreational, health and other services to visiting military personnel and their dependents, including a description of the extent to which military facilities will be available to civilians.

6.3.2.3 Operations

The Proponent must provide the following information:

- (i) a description of the command hierarchy, indicating the proposed extent of the authority of the commanding officer of Canadian Forces Goose Bay over visiting aircraft and personnel and, in particular, of his authority to control the direction, timing and other aspects of the movements of foreign aircraft while in Canadian air space;
- (ii) an estimate of the duration, intensities, and frequency of emission of radiation from aircraft- or ground-based electronic equipment;
- (iii) the number and type of aircraft, including transport and supply aircraft, that will be using the TFWTC;

- (iv) a description of the types of flight training that will be practised including information on altitudes, speeds, and flight-sizes;
- (v) a chemical analysis of the exhaust emissions at varying speeds and altitudes and, if appropriate, under different atmospheric conditions, for each type of aircraft and engine to be used or expected to be used;
- (vi) flight corridors into and out of Goose Bay for aircraft using the TFWTC, including information on the speeds, flight-sizes, and altitudes of such flights, and information on the times of day of those flights and the dates of the first and last flights each year;
- (vii) information on the frequency and distribution of sonic booms, including an analysis of the present state of knowledge concerning the cumulative effects of converging sonic booms, and details of advance warning plans for the public;
- (viii) a description of the measures that will be taken to avoid encounters between military and civil aircraft and to reduce or eliminate disturbances to persons on the ground;
- (ix) an estimate of the frequency of occurrence and duration of interference to civilian communications caused by military electronic equipment;
- (x) a description of planned measures to minimize disturbances to wildlife;
- (xi) risk analysis for predictable types of accidents, including non-flying accidents, and a description of the relevant emergency plans;

- (xii) the facilities to monitor flight paths, altitudes and speeds, and to ensure that no deviations, whether deliberate or accidental, occur;
- (xiii) any restrictions that will be placed on civil flights, including estimates of the frequency and duration of those restrictions;
- (xiv) a description of proposed resupply routes and methods, including an evaluation of the adequacy of existing facilities and a discussion of the need to prolong the shipping season in Lake Melville, to complete the Trans-Labrador Highway, or to take other special measures;
- (xv) a description of anticipated purchasing policies for materials and services;
- (xvi) plans for the abandonment of the whole or any part of Component 2 or any of its elements, including a description of facilities that will be left in place, a detailed plan for dismantling or demobilizing other facilities, plans for reclaiming affected lands, and details for the release, loss, storage or ultimate disposal of any gaseous, liquid, or solid contaminant (including live and dummy ordnance) stored or otherwise situated in any part of the Project Area;
- (xvii) an estimate of the frequency, location, and quantities of in-flight jettisons of fuel; and
- (xviii) a sonometric analysis, as described in Subsection 6.3.1(x).

6.3.3 Tactical Weapons Ranges. The following information must be provided on tactical weapons ranges for Components 1 and 2:

- (i) past, present, and future locations, including size and site-selection criteria and procedures;

- (ii) the types of activities that will be carried out at each of the ranges, including all pertinent data on frequency of use, seasonality, noise levels, with a description of the types and quantities of ordnance that will be used;
- (iii) use of herbicides or other chemicals, including their types and the frequency and methods of application;
- (iv) methods of marking the ranges, keeping out unauthorized persons, and minimizing disturbances to humans and wildlife;
- (v) restricted land or sea areas around ranges;
- (vi) restrictions on civilian flights near ranges;
- (vii) an analysis of the composition and an estimate of the quantities of chemical residues resulting from the use of explosives on land or in water;
- (viii) a description of plans for clean-up;
- (ix) an estimate of the probability of forest fires and a description of plans for combatting them;
- (x) an estimate of the annual mortalities among wildlife, fish and marine mammals on ranges where live ordnance is used;
- (xi) a description of any targets, monitoring facilities, or other installations; and
- (xii) a sonometric analysis, as described in Subsection 6.3.1(x).

6.4 Natural and Human Environments

The Panel has identified the issues it considers most important in Section 5.0 and has listed several other issues in Subsection 6.5. Based on those issues and on the other matters that the Proponent considers important, the Proponent must document the state of the environment.

The Proponent must pay particular attention to the dynamism of the ecosystem. To that end, the EIS must trace the evolution of the ecosystem components specified below and other relevant ecosystem components, and must make predictions as to their probable evolution with and without the Project.

All pertinent data, including raw data, must be included in the EIS. If that is not possible because of the volume of data, raw data may be made available separately from the EIS.

This section of the EIS must not be merely a compilation of data, but must describe the conditions in the Project Area in terms of interactions between the various ecosystem components studied.

A qualitative and quantitative description and evaluation of present and projected resource use must be included. Where necessary, that description must be based on original field work. It must give particular attention to the relationship between the economic activities and practices of the aboriginal peoples and the survival and viability of their cultures.

The description of the environment must include a survey of the aspirations of the residents of the Project Area.

Where data are not available and cannot reasonably be collected, the Proponent must note their unavailability and must describe its efforts to obtain them. The Proponent must seek to eliminate data gaps by the use

of such techniques as simulation, analogue modelling, and extrapolation. The implications of any data gaps for the quality of the EIS or for the reliability of any predictions of impacts must be discussed.

The intent of this section is to provide the context or baseline description of the environment, against which the impacts of the Project can be identified and evaluated. The Proponent must therefore collect such data from areas that have not been regularly overflown at low levels by military aircraft. When that is not possible, the Proponent must accurately identify the impact of previous low-level flying by military aircraft on the reliability and representativity of its data.

The focus of this part of the study is upon the attributes of the Project Area, but attention must also be given to their place in regional, national and international perspectives, and comparisons for similarity or uniqueness must be included, as appropriate.

The Panel considers the following to be the minimum information requirements for describing the existing environment:

6.4.1 Natural Environment

6.4.1.1 Geology and Geomorphology. Consideration of geology and geomorphology must concentrate on a discussion of the conditions at any proposed construction sites, particularly in view of the planned expansion of Goose Bay Airport and the preparation of at least one alternate landing strip, and at the proposed sites of the weapons ranges. Attention must be concentrated on the suitability of the surficial deposits to receive the proposed types of construction. The Proponent must identify any areas with potential commercial mineral deposits that are within areas proposed for weapons ranges.

6.4.1.2 Climate and Air Quality. The following must be described and discussed:

- (a) local wind patterns in the vicinity of the Goose Bay Airport;
- (b) levels of air pollutants in the low-level training areas and in the vicinity of the Goose Bay Airport.

6.4.1.3 Water Quality. Data on relevant parameters for water quality for representative bodies of fresh, salt, and brackish water that have not been intensively overflowed in the past should be presented. Data should also be presented on the present quality of surface and ground water in the vicinity of Happy Valley-Goose Bay, including sources of drinking water.

6.4.1.4 Flora and Fauna.

Particular attention must be directed to rare or endangered species or populations and, as appropriate, to the vicinity of Goose Bay Airport, the Lake Melville area, the low-level training areas, the proposed sites for weapons ranges, and other areas that will be frequently overflowed at low altitudes or otherwise affected by the Project. Where useful or necessary, data on the flora and fauna must be presented separately for individual herds, stocks, populations, or communities.

- (i) Fish - seasonal distribution, movement, abundance, and status of stocks of marine, freshwater, anadromous and catadromous fish, identification of spawning times, and other aspects of behaviour and life-cycles;
- (ii) Marine Mammals - population size and status, seasonal distribution, movements, and other aspects of behaviour and life-cycles;
- (iii) Birds - population size and status, seasonal distribution, movements, and other aspects of behavior and life-cycles;

- (iv) Terrestrial Mammals - abundance, herd/population size and status, seasonal distribution, movements, and other aspects of behaviour and life-cycles; and
- (v) Flora - distribution, composition, and condition of plant communities, including aquatic, littoral and riparian communities.

6.4.2 Human Environment. The EIS must describe the following:

- (i) the distribution and characteristics of the human populations, including such aspects as seasonal variations, population trends and composition, cultural and economic practices and activities, temporary and permanent camps, communities, employment, health, municipal services and infrastructure, and housing, with special attention to the fact that certain facilities and services in Happy Valley-Goose Bay play a regional role;
- (ii) statistics on the physical and psychological health of the various groups in the Project Area, distinguishing where appropriate on the basis of age, sex and ethnic origin, separating the situation prior to 1979 from that after 1979. The term "health" must be given the broadest reasonable interpretation, to include all forms of physiological and psychological stress, trauma, damage or pressure;
- (iii) the economic, cultural and social setting, including present and projected revenues without the Project, with special reference to community and individual subsistence and commercial hunting, fishing and trapping, including such activities in the area of any proposed sea range;
- (iv) a description of the social and economic costs and benefits associated with military activities in the Québec-Labrador Peninsula since 1941, with particular reference to those since 1979. This section must also investigate whether there has been any loss of civilian employment to military personnel since 1979;

- (v) past, present and projected resource use, including commercial and recreational hunting and fishing, subsistence activities, and tourism;
- (vi) past, present and projected commercial aviation, including the use of the air space in question by international and domestic flights, and any future requirement to expand Goose Bay Airport for civil aviation;
- (vii) sites or areas of particular cultural, spiritual, or other importance to the aboriginal or other occupants, and other areas of special status, such as ecological reserves, sanctuaries, and areas of archaeological, historical or palaeontological significance. Archaeological surveys must be conducted in the vicinity of the weapons ranges and on the site reserved for the expansion of the Goose Bay Airport, and in any other areas where the Project could affect archaeological sites and where such surveys have not already been carried out;
- (viii) municipal and regional development and land-use plans; and
- (ix) the history and present status of land claims negotiations in the Project Area.

6.5 Impacts

This subsection must identify clearly the direct, indirect, short-term, long-term, positive and negative impacts, with particular reference to the issues listed in Section 5.0, distinguishing between the impacts of Components 1 and 2.

The requirement for using maps, overlays and other descriptive means described in Subsection 6.3 apply to this present subsection.

The expected environmental, socio-economic and cultural effects of the Project, including the alternatives identified in Subsection 6.2.5, must be described, quantitatively and qualitatively, and evaluated as to their importance on the basis of pre-established criteria. In order to accomplish that, the Proponent must consider each element of the Project, as described in Subsection 6.3, relative to each ecosystem component, as described in Subsection 6.4, and must determine where interactions may occur.

The extent and nature of any knowledge gaps must be identified, particularly where such deficiencies affect the prediction of suspected impacts.

In addition to the issues identified in Section 5.0 and to the other issues that the Proponent identifies, the Proponent must also consider the following:

- (i) the probability that the Project will have adverse effects on communities other than Happy Valley-Goose Bay by attracting to Happy Valley-Goose Bay manpower and capital that would otherwise have been available for other regions of Labrador;
- (ii) the likelihood that improvements to the infrastructure at Goose Bay Airport would alter its operational status in time of war and would render it a likely target for attack;
- (iii) the possible effects on the health of humans or animals of radio-frequency radiation emitted from aircraft or ground-based electronic equipment;
- (iv) the possibility that any economic benefits of the Project will accentuate or prolong the phenomenon of "boom and bust" in the local and regional economies;

- (v) the long-term impact of an increase in military activity at Goose Bay on the cultural and social attitudes and behaviour of the population of the Project Area; and
- (vi) whether local labour pools contain sufficient numbers of persons qualified to fill the posts that will be created in the future. If not, this subsection must state whether existing local and regional training and educational programmes and facilities will be able to meet the anticipated employment needs, and must, if necessary, identify new programmes and facilities, calculate their costs, and identify funding sources.

Impacts occurring at different phases of the Project should be clearly distinguished.

In particular, this section must include an analysis of the impacts of the termination or suspension of the Project, or of either of its components or any of their constituent elements.

6.6 Mitigative Measures

The term "mitigative measures" must be interpreted broadly, so as to include mechanisms for compensating or indemnifying populations, groups or individuals likely to be adversely affected. Mitigative measures include those to enhance or prolong beneficial effects, as well as those to eliminate or reduce adverse effects, including designing or redesigning the Project, or any part thereof, to achieve the preceding objectives.

This subsection must distinguish clearly between the mitigative measures proposed for Components 1 and 2.

This subsection must also identify the costs and feasibility of the mitigative measures proposed and must state who will be responsible for implementing them. Responsibility for damage caused by foreign personnel

or equipment must also be identified. Mechanisms for implementing mitigative measures must be detailed, particularly with reference to activities involving other countries.

The mitigative measures that will be implemented upon the termination of the Project, either of its components, or any of its elements must be clearly identified.

Given the special nature of the Project, this Subsection must contain a description of the legal recourses that will be available to persons or groups that consider that they have been directly or indirectly harmed by the Project.

6.7 Residual Impacts

This subsection must distinguish clearly between the residual impacts of Components 1 and 2.

The residual impacts are those for which practical mitigative measures cannot be devised and those that remain after the successful application of mitigative measures.

The significance of the residual impacts must be determined using the pre-established criteria referred to in Subsection 6.5.

6.8 Monitoring Programme

This subsection must distinguish between the monitoring programmes for Components 1 and 2. Monitoring must be interpreted to include monitoring of the physiological and psychological health of groups and individuals affected by or exposed to the Project.

This subsection must also describe, explain, cost, and identify responsibility for a programme of monitoring designed to achieve at least the following objectives:

- (a) to collect data that were not available when the EIS was prepared;
- (b) to test the validity and accuracy of the predicted impacts;
- (c) to identify, evaluate and mitigate impacts that were not or could not be predicted;
- (d) to identify, determine the significance of, and develop mitigative measures for cumulative impacts; and
- (e) to test the effectiveness of mitigative measures and, where necessary, to identify better mitigative measures.

The proposed duration and location of each element of the monitoring programme must be specified, and the Proponent must offer satisfactory guarantees that the programme will be adequately funded and implemented, and its results appropriately disseminated. Mechanisms for implementing monitoring programmes must be detailed, particularly with reference to activities involving other countries.

The Proponent must indicate how and to what extent the residents of the Project Area will be involved in planning and implementing the monitoring programme. The Proponent must explain how it will resolve jurisdictional problems in mitigating impacts that cross provincial or other jurisdictional boundaries.

In designing monitoring studies, every effort must be made to ensure that the methodologies used are compatible with those used in the preparation of the EIS and permit valid comparisons of the data from each.

This subsection must also contain undertakings from the Proponent as to how it will react to the data and conclusions emerging from the monitoring programme.

The Panel considers the dissemination of information to and consultation with groups and individuals affected by the Project to be an essential component of any monitoring programme. The Proponent must, therefore, describe how and over what period it intends to inform and consult with individuals and groups.

6.9 Appendices

The appendices must include lists of references cited, lists of reports prepared in support of the EIS and all raw data used in the analyses. All information must be made available to the Panel.

7.0 REFERENCES CITED

Beanlands, G.E., and P.N. Duinker. 1983. An Ecological Framework for Environmental Impact Assessment in Canada. Institute for Resource and Environmental Studies, Dalhousie University, Halifax, Nova Scotia; and Federal Environmental Assessment Review Office, Hull, Québec.

APPENDIX I

**LIST OF RECOMMENDED READING ON
METHODOLOGIES TO ASSIST IN PREPARATION
OF THE EIS**

LIST OF RECOMMENDED READING ON
METHODOLOGIES TO ASSIST IN PREPARATION
OF THE EIS*

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- Bowles, Roy T. and Joanne Cook, 1980. Social Impact Assessment in Small Communities. An Integrative Review of Selected Literature, Toronto, Butterworths.
- Canter, Larry W., 1977. Environmental Impact Assessment, New York, McGraw Hill; Chap. 8: "Prediction and Assessment of Impacts on the Cultural Environment", pp. 153-162; Chap. 9: "Prediction and Assessment of Impacts on the Socio-economic Environment", pp. 163-172.
- Erickson, Paul A., 1979. Environmental Impact Assessment. Principles and Applications, New York, Academic Press; Part III: "Assessing Impacts; The Social Environment", pp. 207-279.
- Finsterbusch, Kurt and C.P. Wolf (eds.), 1975. Methodology of Social Impact Assessment, New York, McGraw Hill.
- Finsterbusch, Kurt, Lynn G. Llewellyn, and C.P. Wolf (eds.), 1983. Social Impact Assessment Methods, Beverly Hills, Sage Publications.
- PADC Environmental Impact Assessment and Planning Unit, 1983. Environmental Impact Assessment, Boston, Martinus Nijhoff, Cf C.P. Wolf: "Social Impact Assessment: Methodological Overview", pp. 253-280; C.P. Wolf: "Social Impact Assessment: The State-of-the-Art", pp. 391-401.
- Rau, John G. and David C. Wooten (eds.). Environmental Impact Analysis Handbook, New York, McGraw Hill; Chap. 2: "Socio-economic Impact Analysis", pp. 2-1 to 2-78.
- Rosen, Sherman J., 1986. Manual for Environmental Impact Evaluation, Englewood Cliffs, N.J., Prentice Hall Inc.; Chap. 9: "Socio-economics", pp. 74-78.
- Tester, Frank G. and William Mykes, (eds.), 1981. Social Impact Assessment: Theory, Method and Practice, Calgary, Alberta, Detselig Enterprises Ltd.
- Torgerson, Douglas, 1980. Industrialization and Assessment. Social Impact Assessment as a Social Phenomenon, Toronto, York University Publications in Northern Studies.
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* Taken from "Commentaires et Recommandations du Conseil Attikamek - Montagnais au sujet du document de la Commission d'Évaluation Environnementale", prepared by Conseil Attikamek - Montagnais, October 28, 1986, pp. 32.

APPENDIX II

**ETHICAL PRINCIPLES FOR THE
CONDUCT OF RESEARCH IN THE NORTH**

APPENDICES

Ethical Principles for the Conduct of Research in the North

*Association of Canadian Universities for Northern Studies
Draft Document 1981 (based upon Canada Man and Biosphere
Discussion Document, 1977)*

Introduction

In too many cases, researchers have worked in isolated communities without regard for the people who live there. Communities have been disrupted, and essential local resources used without consultation. Privacy is difficult in small communities, creating additional problems for participants. Guidelines, or principles, are needed so that research may be carried on with a minimum of friction and social disruption.

The principles proposed here are intended to promote co-operation and mutual respect between researchers and the people of the North.

Northerners are involved with research in several different ways:

1. As research subjects,
2. Providing information,
3. As part of a research team,
4. Using the completed research, and
5. Identifying research needs.

If research is to be explained clearly, conducted ethically, and used constructively, it must be guided by principles that consider all of the above mentioned ways in which Northerners are likely to be involved in research activities.

Principles

1. The research must respect the privacy and dignity of the people.
2. The research should take into account the knowledge and experience of the people.
3. The research should respect the language, traditions and standards of the community.
4. The person in charge of the research is accountable for all decisions on the project, including the decisions of subordinates.
5. No research should begin before being fully explained to those who might be affected.
6. No research should begin without the consent of those who might be affected.

7. In seeking informed consent, researchers should clearly identify sponsors, purposes of the research, sources of financial support, and investigators responsible for the research.
8. In seeking informed consent, researchers should explain the potential effects of the research on the community and the environment.
9. Informed consent should be obtained from each participant in research, as well as from the community at large.
10. Participants should be fully informed of any data gathering techniques to be used (tape and video recordings, photos, physiological measures, etc), and the use to which they will be put.
11. No undue pressure should be applied to get consent for participation in a research project.
12. Research subjects should remain anonymous unless they have agreed to be identified; if anonymity cannot be guaranteed, the subject must be informed of the possible consequences of this before becoming involved in the research.
13. If, during the research, the community decides that the research may be unacceptable to the community, the researcher and the sponsor should suspend the study.
14. On-going explanations of research objectives, methods, findings and their interpretation should be made available to the community, with the opportunity for the people to comment before publication; summaries should also be made available in the local language.
15. Subject to requirements for anonymity, descriptions of the data should be left on file in the communities from which it was gathered, along with descriptions of the methods used and the place of data storage.
16. All research reports should be sent to the communities involved.
17. All research publications should refer to informed consent and community participation.
18. Subject to requirements for anonymity, publications should give appropriate credit to everyone who contributes to the research.

Definitions

The principles refer to research in its broadest sense, including fundamental or applied research in the physical, biological or social sciences. Surveys or monitoring studies would also be included. In general, "research" includes all technological activities in the North. Even mineral and petroleum exploration surveys would be expected to honour the general principles. However, the more detailed principles on informed consent and reporting of research results are meant specifically for researchers and might not apply to all technological activities.

The principles focus on those aspects of science that affect local people, communities and their environment. Even where research does not involve the local people in an obvious way, it may still have effects on the land, water or wildlife of the region, and may thus affect the people indirectly.

The word "community" is not restricted to the area of a settlement. The surrounding land that supplies resources for the settlement, and the people who live on the surrounding land, are viewed as part of the community.

The geographic area of concern includes Yukon Territory, the Northwest Territories, Nouveau-Québec, Labrador and the northern parts of the provinces from Ontario to British Columbia (the Extreme North, Far North and Middle North as defined by Louis-Edmond Hamelin [1975]). Although the emphasis is on isolated northern communities, the general principles are not unique to the North and most of them could be applied elsewhere.

APPENDIX III

**CANADA'S RESOLUTION ADOPTED BY THE WORLD CONFERENCE
TO REVIEW AND APPRAISE THE ACHIEVEMENTS OF THE
UNITED NATIONS DECADE FOR WOMEN:
EQUALITY, DEVELOPMENT AND PEACE**



UNITED
NATIONS

A



**World Conference to Review and
Appraise the Achievements of the
United Nations Decade for Women:
Equality, Development and Peace**

Nairobi, Kenya
15-26 July 1985

Distr.
LIMITED

A/CONF.116/C.2/L.11
19 July 1985

ORIGINAL: ENGLISH

SECOND COMMITTEE
Agenda item 8

FORWARD-LOOKING STRATEGIES OF IMPLEMENTATION FOR THE ADVANCEMENT OF WOMEN FOR THE PERIOD UP TO THE YEAR 2000, AND CONCRETE MEASURES TO OVERCOME OBSTACLES TO THE ACHIEVEMENT OF THE GOALS AND OBJECTIVES OF THE UNITED NATIONS DECADE FOR WOMEN: EQUALITY, DEVELOPMENT AND PEACE, AND THE SUBTHEME: EMPLOYMENT, HEALTH AND EDUCATION, BEARING IN MIND THE INTERNATIONAL DEVELOPMENT STRATEGY FOR THE THIRD UNITED NATIONS DEVELOPMENT DECADE AND THE ESTABLISHMENT OF A NEW INTERNATIONAL ECONOMIC ORDER

Canada: draft resolution

Indigenous women

The World Conference to Review and Appraise the Achievements of the United Nations Decade for Women: Equality, Development and Peace,

Recognizing that indigenous women and their families have unique fundamental rights and interests flowing from their original use of resources and their occupancy of land in many countries of the world,

Concerned that the report of the World Conference of the International Women's Year, the Plan of Action adopted at Mexico City, the Programme of Action for the Second Half of the United Nations Decade for Women: Equality, Development and Peace adopted at Copenhagen and the Forward-looking Strategies do not contain adequate measures which focus on the special rights and interests of indigenous women and their families,

Preoccupied by the denials of these special rights and interests of indigenous women and their families, which have been manifested in various parts of the world by grievous problems, including:

(a) Involuntary or forceful relocation, dispossession, assimilation and dispersal of indigenous persons, which has in turn led to serious economic and social problems for these persons,

(b) A lack of affirmative measures to preserve and enhance the unique languages, cultures, values and social structures of indigenous persons,

(c) Violations of treaty and other fundamental rights flowing from indigenous status, often resulting in insufficient land and resources, poverty and deprivation;

Firmly convinced that the denial of the rights of indigenous women and their families is contrary to the purposes and principles of the Charter of the United Nations, the Universal Declaration of Human Rights and the objectives of the present Conference,

1. Reasserts that the rights of indigenous persons apply equally to women and men;

2. Affirms the rights of indigenous women and their families to a just and equitable share of land and resources,

3. Urges States to govern themselves within their jurisdictions so as to respect and ensure the rights of indigenous women and their families in all aspects of indigenous life;

4. Further urges the United Nations and its bodies, such as the Commission on Human Rights, the Human Rights Committee, the Committee on the Elimination of Discrimination against Women, the Committee on the Elimination of Racial Discrimination, and the Sub-Commission on Prevention of Discrimination and Protection of Minorities, in particular its Working Group on Indigenous Populations, to recognize and support the rights of indigenous women and their families;

5. Requests the Secretary-General, when reporting in pursuance of Economic and Social Council resolution 1984/12 to the Commission on the Status of Women at each session on all significant developments pertaining to the advancement of women within the United Nations system that have occurred since the previous session to include in that report a section on the measures and initiatives taken within the United Nations system pertaining to indigenous women and their families.